6.2 Specific RUS Requirements and Goals by Time Frame

6.2.1 Short-Term RUS Requirements (1997-2001):

1. **New facilities (installed after 1996) must be constructed such that:**
   - **Every subscriber can have one-party service if requested**
     — One-party service has been available to all subscribers for several years. It will continue to be available to all.
   - **The facilities are suitable, as built or with additional equipment, to support data transmission and reception at rates of at least 1 Mb/s**
     — Through the use of remote switching centers and because of the relatively small size of the island, most subscriber loops are short enough to enable the use of High-bit-rate Digital Subscriber Line (HDSL) technologies to provide two-way data transmission at rates of at least 1 Mb/s. All new loop facilities are capable of supporting HDSL since at least three pairs of wires are placed to every new customer premises.[2]
2. **New switching equipment (installed after 1996) must be capable of providing:**
   - **Custom Calling Features (call waiting, call forwarding, abbreviated dialing, three-way calling)**
     — The switches currently support a wide variety of custom-calling and CLASS features, including:
       - Call Forwarding
       - Call Forwarding on Busy
       - Call Forwarding, No Answer
       - Call Waiting
       - Three-Way Calling
       - Speed Calling
       - Teen Service Custom Calling
       - Caller I.D.
       - Per Call Blocking
       - Anonymous Call Block
       - Incoming Call Block
       - Incoming Call Acceptance
       - Call Return
       - Priority Ring
       - Repeat Dialing
       - Select Call Forwarding

2. Although the service drops consist of at least three pairs of wires, the feeder and distribution cables generally have only 1.5 pairs per customer. The use of conduit simplifies increasing the number of pairs in the feeder and distribution plant when required by customer demand; and this can be done at lower cost and in less time than adding new service drops.

- **Enhanced 911 (E911) services.**

  — Island-wide E911 has been available since 1992.

6.2.2 Medium-Term RUS Requirements (2002-2006):

1. **New facilities (installed after 2001) must be constructed such that the facilities are capable, as built or with additional equipment, of delivering video information to subscribers. The video must be of sufficient quality to depict motion.**

   — Through the use of remote switching centers, and because of the relatively small size of the island, most subscriber loops are short enough to enable the use of Asymmetric Digital Subscriber Line (ADSL) technologies to provide video-delivery services. All new loop facilities are capable of supporting ADSL since at least three pairs of wires are placed to every new customer premises.

2. **By 2002, all switching equipment must be capable of providing E911 services.**

   — Island-wide E911 has been available since 1992.

3. **By 2006, one-party service must be provided to any subscriber who demands it.**

   — One-party service has been available to all subscribers for several years. It will continue to be available to all.

6.2.3 Long-Term RUS Goals (2007-2011):

The RUS has provided the following as goals, not requirements:

1. **Elimination of party-line services.**

   — Party-line service has already been eliminated, and one-party service has been available to all subscribers for several years.

2. **Universal availability of:**

   - **Digital voice and data services at rates from 56 kb/s to 164 kb/s**

     — All existing switches are capable of supporting ISDN basic rate interfaces of 144 kb/s,[3] if appropriately equipped. Thus they will support digital data services at rates of 16 kb/s, over the D channel, and 64 kb/s and 128 kb/s over one and two B channels. It will also support one or two digital voice channels at 64 kb/s each.

3. Although the RUS Regulations call for rates of up to 164 kb/s, a conversation between Kenneth Lutz and Gerald Nugent of the RUS on September 7, 1995, confirmed that the RUS was interested in promoting ISDN and that the regulation should have stated 144 kb/s. Mr. Nugent also emphasized that this part of the regulation concerning long-term goals are not requirements that have to be met in the TTMP.

- **Two-way data services at rates greater than or equal to 1 Mb/s**
  - — Through the use of remote switching centers, and because of the relatively small size of the island, most subscriber loops are already short enough to enable the use of HDSL technologies to provide two-way data transmission at rates of at least 1 Mb/s.
- **Video delivery services**
  - — Through the use of remote switching centers and because of the relatively small size of the island, most subscriber loops are already short enough to enable the use of ADSL technologies to provide video delivery services.

7. Plans for Modernizing Guam's Telecommunications Infrastructure

This section contains the detailed plans for modernization of Guam's telecommunications infrastructure. It is based on (1) modernization plans that existed prior to developing this TTMP, and (2) approaches to filling the "gaps" identified by comparing (a) the existing network and plans to (b) the RUS requirements and the vision for Guam's network. This section was written under the assumption that the modernization is both economically and technically feasible.

7.1 General Requirements

7.1.1 An Engineering Description of the Characteristics of the Future Telecommunications Infrastructure

Guam's telecommunications infrastructure today is quite modern. It is composed of digital switches with remote switching systems that permit the lengths of loops to be relatively short. Services that are provided universally today include one-party service, custom-calling services, and E911. All services are available to all island residents, regardless of whether they live in urban, suburban, or rural areas. Future services will include data transmission and reception services of at least 1 Mb/s, video delivery services, and ISDN services to all island residents. The telecommunications infrastructure will support medical links and distance learning services, and this TTMP provides guidelines for affordable tariffs for these services (see Section 3.5). These voice, video, and data services will improve communications for business and commerce and will be the foundation for establishing computer networks and information highways for rural subscribers.

The network architecture, which will be based on international standards, will be flexible enough to incorporate new technologies and will enable all providers to achieve the requirements and goals of the TTMP. The loop facilities will be upgraded to permit high-speed data transmission of video and data services. Since new electronic loop systems and feature-rich customer premises equipment may require external power sources, this modernization plan includes provisions for the reliable powering of basic voice telephone services in the event of a power outage. This TTMP calls for uniform deployment schedules for rural and non-rural areas, as exemplified by the deployment of fiber-optic rings around the entire island and the availability of one-party and custom calling services to all residents. If certain services cannot be deployed at the same time for rural and non-rural areas, then only the minimum feasible time interval shall separate the availability of those services in rural and non-rural areas.

Other features for Guam's telecommunications infrastructure include:

- Cellular and PCS services
- Video conferencing services
- Expansion of Centrex services
- Expansion of public-phone services
- Number portability

- Enhancements to the E911 system
- Emergency call boxes
- Portable 800 data base
- Advanced intelligent network services

7.1.2 Flexible architectures/designs that enable incorporation of new technologies, as appropriate

Because the Guam telecommunications infrastructure is generally based on standard technologies and architectures, it will be easier to incorporate new technologies as they are developed, especially since they are often developed to be backward compatible. Today, Guam's modern infrastructure is available to all island residents, whether they are in urban, suburban, or rural areas. The three fiber-optic rings that already cover the island will help ensure that deployments of new services will be made available to all island residents at the same time. As stated in Section 3.4, deployment schedules should not favor urban and suburban areas over rural areas.

Guam already has two cellular providers and two cable TV providers. In the future, technological developments in Personal Communications Systems (PCS) will drive down costs for wireless services, while broadband access technologies may enable the cable TV and telephone providers to offer a full range of telecommunications services. The TTMP encourages service providers to integrate their services into the telecommunications infrastructure so that the residents of Guam are offered a full range of modern telecommunications services. The TTMP also encourages the use of new interstate services made available by undersea fiber-optic cables and satellite data links.

7.1.3 Guidelines for telecommunications providers to develop affordable tariffs for medical and educational applications

Guidelines for tariffs for medical and educational applications were discussed in Section 3.5. A goal of the TTMP is to have medical-link and distance-learning services provided at affordable prices, and the GPUC will require affordable tariffs to the extent allowed by law. The GPUC encourages service providers to develop affordable tariffs through guidelines such as distance-independent rates, special pricing (*e.g.*, providing services at cost), and long amortization periods.

7.1.4 Provisions for reliable powering of basic voice telephone services

As the telecommunications infrastructure of Guam migrates toward newer technologies and services, this TTMP considers maintaining current levels of voice service reliability to be of paramount importance. Reliable voice service is especially important for rural subscribers, who may be physically distant from vital services, such as fire, ambulance and police services. This TTMP requires that telecommunications providers develop and deploy reliable powering schemes for basic voice communications, including customer premises equipment and network demodulation equipment, such as remote terminals and

optical network units. Telecommunications providers must not rely on electric-utility power for basic voice telephone service, especially because Guam is occasionally struck by typhoons that can cause extended power outages.

Fiber-optic transmission systems will continue to be the medium of choice as new broadband services are offered; but the introduction of fiber into the local loop also introduces electrical isolation from the central office. There are several ways to provide reliable power in the local loop. One way is to provide power from the network through copper conductors (perhaps using retired twisted pairs that are already in place) alongside the fiber-optic cables to network demodulation equipment and customer premises equipment that would otherwise be isolated.

Another source of power comes from the sun. Because of its location near the equator in the North Pacific Ocean, Guam's tropical climate guarantees that sunny skies are frequent. Introducing solar power, with battery backup for nights and cloudy days, may be an attractive solution for powering remote facilities.

A third solution is to power a group of remote facilities from a central electrical utility drop. For backup, batteries or small generators could be provided at a central site at or near the remote facilities. The batteries could be kept charged by using power from the electrical utility when available or from the generator or solar panels in the event of a power failure.

Reliable powering of customer premises equipment can be done in a similar way. Battery backup could be provided to ensure enough power to customer equipment for basic telephony services. One concern, however, is that batteries may not last for the duration of an extended power failure. This could be remedied by charging the batteries either from solar panels on customer premises or by trickle-charging them through the network. It would also be important that customer premises equipment operate only in a basic mode to extend battery life during a power outage. This solution for customer premises equipment involves the use of a large number of batteries that would need to be replaced periodically; so battery replacement and disposal would have to be considered from operational and environmental standpoints.

The reliability of the telecommunications network can also be increased by deploying energy-efficient equipment, which would extend the capacities of backup systems. An example is to phase out electromechanical ringing devices on customer premises equipment and replace them with piezoelectric ringers, which require only 1% of the power of an electromechanical ringer and make a warbling or chirping sound. By saving power in the local loop, the capacities and durations of backup systems could be significantly extended.

The TTMP requires telecommunications providers to make use of reliable power schemes when new technologies are introduced. This section of the TTMP has suggested only examples of solutions to the problem of reliably powering basic voice telephone service; other options would be considered in the light of technology choices made by the telecommunications providers.

7.2 Short Term (1997-2001)

This section reviews how the existing GTA facilities meet all the short-term requirements.

7.2.1 Services and Capabilities Provided

GTA provides one-party voice services and E911 to all residents of Guam. In addition, a wide variety of custom-calling and CLASS features are offered. These include:

- Call Forwarding
- Call Forwarding on Busy
- Call Forwarding, No Answer
- Call Waiting
- Three-Way Calling
- Speed Calling
- Teen Service Custom Calling
- Caller I.D.
- Per Call Blocking
- Anonymous Call Block
- Incoming Call Block
- Incoming Call Acceptance
- Call Return
- Priority Ring
- Repeat Dialing
- Select Call Forwarding

All new loop facilities are constructed with at least three pairs of wires to every customer premises. Thus HDSL technology, which requires two pairs of wires, can be used to provide data transmission and reception at a rate of at least 1 Mb/s. The telecommunications infrastructure is also capable of supporting distance-learning services, medical services such as medical imaging, and video conferencing.

7.2.2 Technologies and Architectures

The Guam telecommunications infrastructure will continue to be modernized in the short term. Of significance in the modernization plan will be to provide the capability for data transmission and reception of at least 1 Mb/s in all new facilities.

7.2.2.1 Loop Access

All new loop facilities are being constructed with at least 3 twisted pairs of wires.[4] Because of the extensive use of remote switches, most subscriber loops are short enough to enable the use of High-bit-rate Digital Subscriber Line (HDSL), which requires two pairs of wires, to provide two-way data transmission at rates of at least 1 Mb/s. Thus any customer on a new loop facility will be able to receive this data service upon request. For loops longer than the HDSL limit,[5] repeaters are available to extend the range of HDSL capabilities. Any

4. Although the service drops consist of at least three pairs of wires, the feeder and distribution cables generally have only 1.5 pairs per customer. The use of conduit simplifies increasing the number of pairs in the feeder and distribution plant when required by customer demand; and this can be done at lower cost and in less time than adding new service drops.

5. 12 kilofeet on 26 gauge wires.

loop facility that uses HDSL must have a means of providing reliable power for basic voice telephony services (see Section 7.1.4).

All outside-plant facilities will be placed in conduits or directly buried along with a conduit. This will facilitate upgrading those facilities in the future with copper, coaxial, or fiber-optic cables when needed.

7.2.2.2 Interoffice Transport

The interoffice transmission facilities are over fiber-optic cable configured in survivable configurations. No modernization is required in the near term since the rings have enough capacity to support data transmission services of 1 Mb/s or higher as well as distance-learning, medical, and video conferencing services.

Because of customer demand, synchronous optical network (SONET) technologies will be deployed for interswitch trunking to provide SONET at the interface between the GTA digital switches and the interexchange carriers. This use of SONET is the first step in modernizing the GTA transport facilities for high-speed, digital, SONET transport.

7.2.2.3 Switching

The switching infrastructure on Guam uses the latest in digital switching technologies. As stated above in Section 6.2.1, it provides a full range of services, including E911, custom calling, and CLASS.

7.2.2.4 Signaling and Service Control

Many new services rely on intelligent-network capabilities, which use the Common Channel Signaling (CCS) network for communications between service-providing network entities. At the center of Guam's telecommunications network are two NorTel DMS-100 and one DMS-100/200 switches, which currently use CCS to provide E911 services and Custom Calling features, such as call waiting, call forwarding, abbreviated dialing, and three-way calling.

Should Guam receive domestic-rate integration and become part of the North American Numbering Plan, the types of services offered to Guam residents could be expanded (e.g., 800 Services). This would require interconnecting the Guam CCS network with that of North America. Since the NorTel switches already support CCS through Switching Service Point (SSP) functionality, it is a relatively simple matter to connect the Guam CCS network to North America. One way is to add a Switching Transfer Point (STP), through which all CCS traffic would flow, including CCS traffic to and from North America. Another way would be to upgrade a NorTel switch to become an INode, with STP functionality. While this can be done with a software upgrade, some additional hardware may be required to support the additional CCS traffic.

7.3 Medium Term (2002-2006)

During the period from 2002 to 2006, the Guam telecommunications infrastructure will continue to be capable of transmitting video to subscribers, as well as E911, one-party, and customer calling services.

7.3.1 Services and Capabilities Provided

As stated above in Section 6.2.1, the existing telecommunications infrastructure on Guam already provides E911 services throughout the territory as well as one-party service.

Customers who have new loop facilities in place and other customers whose facilities have been upgraded or are already video-capable will have the ability of obtaining video services. The loop facilities will be capable of carrying of at least VCR quality with full motion.

If Guam receives domestic-rate integration and becomes part of the North American Numbering Plan, it is anticipated that domestic access to the Internet would be provided.

7.3.2 Technologies and Architectures

In planning for network technologies required to support voice, video, and data services, this TTMP recommends that candidate technologies be reexamined annually to determine which will best suit the needs of Guam in this medium-term time period. The TTMP also recommends that more stringent criteria for the quality of video services be considered should future technology support them.

7.3.2.1 Loop Access

All new loop facilities are being constructed with at least 3 twisted pairs of wires. Because of the extensive use of remote switches, subscriber loops will be short enough to enable the use of Asymmetric Digital Subscriber Line (ADSL), which requires only one pair of wires and which provides one-way video transmission of up to 6 Mb/s. Thus all new loop facilities are being built with the capability of transmitting video to a subscriber as well as providing two-way data transmission at rates of at least 1 Mb/s (see Section 7.2.2.1). ADSL would take advantage of current deployment plans for new loop facilities, and equipment capable of handling both HDSL and ADSL are commercially available. Any loop facility that uses ADSL must have a means of providing reliable power for basic voice telephony services (see Section 7.1.4).

Other technologies will be capable of providing these services, but the technologies are just starting to undergo field trials in 1995 or 1996. One set of technologies is bidirectional fiber-coaxial cable bus systems. Since some of these provide only narrowband upstream channels (*i.e.*, from the customer to the network), they would not be able to provide the two-way data transmission services of 1 Mb/s or more; and additional facilities in the loop would be required. Other hybrid fiber-coaxial cable bus systems are capable of higher-rate upstream channels and would be able to provide both video transmission as well as

way data transmission services. Another technology is fiber-to-the curb. This is capable of providing both video and two-way data transmission services.

Any loop facility that uses fiber-optic cable may be electrically isolated from the network and thus not be able to be powered from the network unless other means for network powering are provided. The discussion in Section 7.1.4 above shows how this deficiency can be overcome so that basic service can be provided during power outages.

At this point in time, none of these emerging technologies is a clear choice. All are undergoing field tests in the near future, and it remains to be seen how well they perform and how costly they will be. This TTMP recommends that candidate technologies be reexamined annually so that choices can be made in sufficient time to meet the RUS mid-term requirements. The TTMP also encourages telecommunications service providers to upgrade their existing loop plant to be able to carry video and two-way data transmission services.

All outside-plant facilities will be placed in conduits or directly buried along with a conduit. This will facilitate upgrading those facilities in the future with coaxial or fiber-optic cables when needed.

7.3.2.2 Interoffice Transport

Synchronous optical network (SONET) technologies are become widely deployed throughout the world. The TTMP recommends that the existing fiber-optic configurations be upgraded to SONET rings for three reasons. First, SONET forms the foundation for advanced, high-speed data-transport services. Many companies, for example, are beginning to request SONET interfaces. Also, by the turn of the century, asynchronous transfer mode (ATM) will be a standard form of high-speed data communications and should be carried over SONET. Second, the existing fiber-optic cables can be used since they are single-mode fiber; only the terminals have to be changed. This will significantly minimize the costs. Third, SONET is a standard technology and would permit a number of different suppliers to provide the transmission equipment.

7.3.2.3 Switching

The switching infrastructure on Guam has kept up with the latest switching technologies. The TTMP recommends that this continues. During this mid-term period, it is likely that ATM switches will become available for high-speed data (cell-relay) services. If there is a customer need, the Guam network will be upgraded to provide ATM switching capabilities.

7.3.2.4 Signaling and Service Control

As mentioned in the previous section, the CCS network may have to be upgraded to handle additional traffic loads, depending on whether or not Guam receives domestic-rate integration and becomes part of the North American Numbering Plan.

7.3.3 Economic and Technical Feasibility

This TTMP requires providers to demonstrate economic and technical feasibility in their modernization plans.

7.4 Long Term (2007-2011)

The long-term goal is to have the entire telecommunications infrastructure of Guam capable of providing video and two-way data transmission services to any customer who requests them. As noted above in Section 6.2.1, all party-line service has been eliminated and all customers now have one-party service.

7.4.1 Services and Capabilities Provided

In the long term, all residents of Guam shall have the capability of ordering narrowband digital voice and data services from 56 kb/s to 144 kb/s;[6] video services of at least VCR quality and capable of full motion; and two-way data transmission services of 1 Mb/s or greater.

7.4.2 Technologies and Architectures

Providing these services will require upgrades to the existing loop plant and increasing the capacity of the backbone network to handle the additional traffic.

7.4.2.1 Loop Access

All loop facilities will be upgraded to handle voice, data, and video services, using the technologies described in Section 7.3.2.1. As the loop plant is upgraded, all facilities will be placed underground in conduits rather than buried directly to facilitate future upgrades when needed.

Because of the use of remote switching centers, most subscriber loops are short enough to enable the use of basic-rate ISDN, which provides digital voice and data channels for a combined rate of 144 kb/s.

7.4.2.2 Interoffice Transport

Assuming that SONET has been deployed (see Section 7.3.2.2), the interoffice transport network will be upgraded to handle additional traffic loads.

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6. Although the RUS Regulations call for rates of up to 164 kb/s, a conversation between Kenneth Lutz and Gerald Nugent of the RUS on September 7, 1995, confirmed that the RUS was interested in promoting ISDN and that the regulation should have stated 144 kb/s. Mr. Nugent also emphasized that this part of the regulation concerning long-term goals are not requirements that have to be met in the TTMP.

HDSL although HFC and FTTC technologies will also be considered. Switching and interoffice facilities will need to be able to support these services, as will the signaling and control network for switched services and the management network for private line services.

However, it may be appropriate to consider other loop access technologies, such as HFC and FTTC. Backbone network issues will also need to be addressed.

7.4.2.3 Switching

The existing switching infrastructure is capable of providing ISDN service. Other high-speed, switched data services (*e.g.*, cell relay) will be provided in this time period according to customer need (see Section 7.3.2.3).

7.4.2.4 Signaling and Service Control

The CCS network will be upgraded to handle additional traffic loads.

8. Summary

This TTMP for the Territory of Guam meets the requirements of the RUS to modernize the network over the next 15 years. More important, the TTMP will support Guam's economic development and provide a high quality of life for the residents.

The main features of the plan will provide high-speed data and video services throughout the Territory, which already has one-party service, custom calling features, and E911. The plan also provides guidelines for the development of affordable tariffs medical links and distance learning services. The main features of the plan are shown below:

- **Services Already Available**
  - — One-party service is available to all subscribers.
  - — Custom calling features are available to all subscribers.
  - — E911 is available throughout Guam.
  - — New loop facilities can provide data transmission and reception of at least 1 Mb/s.
  - — New loop facilities can provide video services with at least VCR-like quality and full motion.
  - — Reliable powering of basic voice telephone service exists throughout Guam.
- **General**
  - — Guidelines for the development of affordable tariffs medical links and distance learning services
- **Short Term (1997-2001)**
  - — Already met
- **Medium Term (2002-2006)**
  - — Already met
- **Long Term (2007-2011)**
  - — Digital voice and data services (ISDN) available to all subscribers
  - — Video services available to all subscribers
  - — Two-way data transmission services of at least 1 Mb/s available to all subscribers

As technology evolves and matures, the details of this TTMP will be reviewed annually to ensure the technical and economic feasibility of this plan. If conditions warrant, the GPUC will amend the plan and submit it to the RUS for approval. The GPUC will ensure that the amended TTMP meets the RUS requirements.

The following tables show how the TTMP satisfies the RUS Requirements.

Table 1: General Modernization Requirements (RELRA)

Requirement	Already Met	Section Reference
Notify all telecommunications providers in the Territory of its intent to develop a TTMP.	✓	1
Solicit views of telecommunications providers.	✓	1
Provide for the elimination of party-line service.	✓*	6.2.1(1)
Provide for the availability of telecommunications services for improved business, educational, and medical services.	✦	7.1.2 7.2.1 7.3.1
Encourage and improve computer networks and information highways for subscribers in rural areas.	✦	7.1.2 7.2.1 7.3.1
Allow subscribers to receive through telephone lines conference calling.	✓*	6.2.1(2)
Allow subscribers to receive through telephone lines video images.	✦	7.2.2.1 7.3.2.1
Allow subscribers to receive through telephone lines data at a rate of at least 1Mb/s.	✦	7.2.2.1
Provide for the proper routing of information to subscribers.	✓*	6
Provide for uniform deployment schedules to ensure that advanced services are deployed at the same time in rural and nonrural areas.	✦	7.1.2

* Met by GTA capabilities.

✦ Will be met by all new GTA facilities, and already met by most of the existing GTA facilities.

Table 2: General Requirements for a TTMP (RUS)

Requirement	Section Reference
A short engineering description of the characteristics of a future telecommunications structure that would enable all telecommunications providers to achieve the requirements and goals of the TTMP.	7.1.1
Names of the telecommunications providers that are covered by the TTMP.	4
Flexible architectures and designs that allow for the expeditious deployment and integration of new technologies, as appropriate and when commercially feasible.	7.1.2
Guidelines for telecommunications providers to develop affordable tariffs for medical and educational applications.	3.5
Minimum feasible interval of time separating the availability of services in rural and nonrural areas	3.4 7.1.2
Provisions for reliable powering of basic voice telephone services.	7.1.4

Table 3: RUS Modernization Plan Requirements - Short-Term 1997-2001

Requirement	Already Met	Section Reference
All new facilities shall be constructed to provide one-party service.	✓	6.2.1(1) 7.2.1
All new facilities shall be constructed to provide data transmission and reception at a rate no lower than 1Mb/s.	✓	7.2.2.1
All switching equipment installed shall provide custom calling features, including call waiting, call forwarding, abbreviated dialing, and three-way calling.	✓	6.2.1(2) 7.2.1
All switching equipment installed shall provide E911 service when requested by the Government responsible.	✓	6.2.1(2) 7.2.1

Table 4: RUS Modernization Plan Requirements - Medium-Term 2002-2006

Requirement	Already Met	Section Reference
All new facilities must be capable (as built or with additional equipment) of transmitting video to a subscriber. The video must be capable of depicting a reasonable representation of motion. The plan developer shall determine audio and video quality.	✓	7.3.1 7.3.2.1
All switching equipment shall be capable of providing E911 service by the beginning of the medium-term start date.	✓	6.2.2(2)
One-party service must be provided on demand by a subscriber no later than five years after the beginning of the medium-term start date.	✓	6.2.2(3)

Table 5: RUS Modernization Plan Goals - Long-Term 2007-2011

Requirement	Already Met	Section Reference
Elimination of party-line service.	✓	6.2.3(1)
Make available to any subscriber digital voice and data services (56 kb/s to 164 kb/s).		7.4.1 7.4.2.1
Make available to any subscriber data transmission and reception services of rates no less than 1Mb/s.		7.4.1 7.4.2.1
Make available to any subscriber reception of video, capable of depicting a reasonable representation of motion.		7.4.1 7.4.2.1

GLOSSARY

ADSL	Asymmetric Digital Subscriber Line
ATM	Asynchronous Transfer Mode
CCS	Common Channel Signaling
CFR	Code of Federal Regulations
CLASS	Custom Local Area Signaling Services
DMS	Line of NorTel Digital Switching Systems
FCB	Fiber-Coax Bus
FTTC	Fiber-to-the-Curb
GII	Global Information Infrastructure
GPUC	Guam Public Utilities Commission
GTA	Guam Telephone Authority
HDSL	High-bit-rate Digital Subscriber Line
HFC	Hybrid Fiber/Coaxial cable
ISDN	Integrated Services Digital Network
IXC	Interexchange Carrier
NII	National Information Infrastructure
PCS	Personal Communications System
PUC	Public Utilities Commission
RELRA	Rural Electrification Loan Restructuring Act
RSC	Remote Switching Center
RUS	Rural Utilities Service
SONET	Synchronous Optical Network
SSP	Switching Service Point
STP	Switching Transfer Point
TDD	Telecommunications Device for the Deaf (Text Terminal)
TTMP	Territorial Telecommunications Modernization Plan
TTY	Text Telephone
TV	Television
VCR	Video Cassette Recorder